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310 CMR 7.40: THE MASSACHUSETTS LOW EMISSION VEHICLE PROGRAM

Background Document and Technical Support for Public Hearing on The Proposed Amendments to Adopt the California Zero Emission Vehicle Program Regulations

Regulatory Authority: Massachusetts General Law, Chapter 111, Section 142A through 142M & Massachusetts General Law, Chapter 21N, §§ 3 and 6

November 2015

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APPENDIX A: Proposed Amendments to the Zero Emission Vehicle Regulation

List of Acronyms

ACC	Advanced Clean Car
ARB	California Air Resources Board
AT PZEV	Advanced Technology Partial Zero Emission Vehicle
CAA	Clean Air Act
CCR	California Code of Regulations
EO	Executive Order
GWSA	Global Warming Solutions Act
GHG	Greenhouse Gas
IVM	Intermediate Volume Manufacturer
IVM_5	Intermediate Volume Manufacturers (Jaguar Land Rover, Mazda, Mitsubishi, Subaru, and Volvo)
LDT	Light Duty Truck with a loaded vehicle weight of up to 8,500 pounds
LEV	Low Emission Vehicle
LVM	Large Volume Manufacturer
MDPV	Medium Duty Passenger Vehicle with a Gross Vehicle Weight between 8,501 and 14,000 pounds
MGL	Massachusetts General Law
MY	Model Year
OCP	Optional Compliance Path
PC	Passenger Car
PZEV	Partial Zero Emission Vehicle
Type III	Range of 100 or more miles plus fast refueling, or 200 mile Battery Electric vehicle Fuel Cell or Battery Electric vehicle
Type IV	Range of 200 or more miles plus fast refueling Fuel Cell
Type V	Range of 300 or more miles plus fast refueling Fuel Cell
TZEV	Transitional Zero Emission Vehicle
US EPA	United States Environmental Protection Agency
VIN	Vehicle Identification Number
ZEV	Zero Emission Vehicle

Background Document and Technical Support for Public Hearing on the 2013 Minor Modifications and the 2014 Amendments to Adopt the California Zero Emission Vehicle Program Regulations

310 CMR 7.40: The Massachusetts Low Emission Vehicle Program November 2015

I. EXECUTIVE SUMMARY

The Massachusetts Department of Environmental Protection (MassDEP) is proposing to revise the Massachusetts Low Emission Vehicle (LEV) Program regulations, 310 CMR 7.40, by adopting California's 2013 Minor Modifications to the Zero Emission Vehicle (ZEV) regulations and California's 2014 Amendments to the California ZEV Program. Under Massachusetts General Law (M.G.L.) c.111, §142K, MassDEP is required to adopt and implement California motor vehicle emission standards as long as those standards are at least as protective as the federal standards.[1] Because there are no federal ZEV requirements, MassDEP is required to adopt California's ZEV program and to amend the Massachusetts regulations so they continue to be identical to California's. *See* Section 177, 42 U.S.C. §7507.

The California Air Resources Board (ARB) first adopted the ZEV requirements in 1990 and has modified them several times to reflect the current status of ZEV technologies (e.g., battery electric, plug-in hybrids, and hydrogen technologies) in achieving its ultimate goal of near zero emissions from the passenger car (PC) and light-duty truck (LDT) fleet.[2] In December 2012, MassDEP adopted the California Advanced Clean Car (ACC) program, which included increased ZEV requirements through and beyond model year (MY) 2025. Although adjustments have been made to the program, the fundamental goal of the program, commercialization of ZEV technologies, has not changed.

Under Section 209 of the federal CAA, California was granted an exemption to federal preemption because of the state's unique air quality problems. This exemption gave California the authority to set its own standards as long as those standards are at least as protective as the federal standards.[3] Section 177 of the CAA allows other states to adopt the California standards, if the standards are identical to California's and are adopted at least two years prior to the commencement of the model year to which the standards will apply.[4]

In short, the revisions to the ZEV requirements that ARB has adopted, and that MassDEP now proposes to adopt, continue to require automobile manufacturers to develop and introduce advanced vehicle and ZEV technologies. However, these revisions provide

[1] Massachusetts General Laws, Chapter 111, Section 142K. Motor vehicle emissions standards.
[2] Achieving an ultimate goal of a near zero emissions vehicle fleet in Massachusetts would also significantly advance the statutorily mandated goal of reducing greenhouse gas emissions at least 80% by 2050 as enacted by the Massachusetts Legislature in 2008. See M.G.L. c. 21N and discussion below.
[3] U.S.EPA, Title II – Emission Standards for Moving Sources, Part A – Section 209, 42 U.S.C. §7543
[4] U.S.EPA, Title I – Air Pollution Prevention and Control, Part D – Section 177, 42 U.S.C. §7507

additional flexibility to automobile manufacturers, allowing them to pool ZEV credits across state lines within and between two regional pools.[5] By 2025, compliance with the requirements will likely result in ZEVs and transitional zero emission vehicles (TZEVs) (i.e., plug-in hybrids) comprising more than 15% of vehicle sales.[6]

In addition to the ZEV revisions, MassDEP is proposing to change the automobile manufacturer reporting requirements for submitting executive orders (EOs) and warranty and recall reports to MassDEP. Currently, the reports are submitted in hard copies. MassDEP is proposing to provide automobile manufacturers the option to submit these reports electronically to minimize the administrative burdens on the automobile manufacturers associated with complying with the LEV reporting requirements. In addition, electronic submission will also be easier for MassDEP to process.

Implementation of the amended ZEV standards will also achieve reductions in greenhouse gases (GHGs), which is an environmental priority for MassDEP as an agency tasked with implementation of the Global Warming Solutions Act (GWSA) of 2008. In response to the threat of global warming, the Massachusetts Legislature enacted the GWSA, which includes M.G.L. c. 21N. This statute requires GHG reductions of 10-25% below 1990 levels in 2020 and at least 80% in 2050. The Massachusetts Clean Energy and Climate Plan for 2020 (CECP) issued by the Secretary of Energy and Environmental Affairs pursuant to the GWSA established a goal of 25% GHG emissions reductions by 2020 and specified that work on the transportation sector was very important to attaining this goal. Pursuant to inventory work done under the Massachusetts GWSA, Massachusetts' GHG emissions for the transportation sector have been found to be the single largest sector of GHG emissions. In 2011, transportation represented approximately 39% of Massachusetts GHG emissions. Between 1990 and 2011, GHG emissions in the Massachusetts transportation sector increased, in contrast to reductions seen in other sectors (e.g., electricity generation, residential, commercial and industrial fuel use, and agriculture).[7]

Implementation of the ZEV standards for motor vehicles will result in a substantial reduction in CO_2 emissions in Massachusetts from the transportation sector and will help the Commonwealth meet its air quality and GWSA goals. In addition, the vehicle technologies used to comply with the ZEV requirements will reduce demand for petroleum fuels and help diversify the transportation fuel market. The increase in alternative fuels, such as electricity and hydrogen, will decrease our demand for fossil-fuels as well as reduce pollutants that harm public health, degrade environmental quality, and contribute to global warming.

Section IV below contains details on MassDEP's proposed amendments.

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[5] Two Regional pools are the West Region pool and East Region pool. LEV states west of the Mississippi River, excluding California, make up the West Region pool (OR), and LEV states east of the Mississippi River make up the East Region pool (CT, ME, MD, MA, NJ, NY, RI, and VT).

[6] ARB, 2013. The 2013 Minor Modifications to the California Zero Emission Vehicle Program Regulation, California Air Resources Board, September 4, 2013. (http://www.arb.ca.gov/regact/2013/zev2013/zev2013isor.pdf)

[7] Massachusetts Annual Greenhouse Gas Emissions Inventory: 1990-2011, with Partial 2012 Data, July 2014. http://www.mass.gov/eea/agencies/massdep/climate-energy/climate/ghg/greenhouse-gas-ghg-emissions-in-massachusetts.html

II. INTRODUCTION

Since the development and adoption of the California LEV program in the early 1990s, the automobile manufacturers have made significant technological advances in reducing emissions from PCs, LDTs, and medium-duty passenger vehicles (MDPVs). However, growing populations and an increasing use of motor vehicles will continue to exert an upward pressure on statewide emissions of greenhouse gases, smog, particle pollution, and other toxic pollutants. Exposure to these pollutants poses serious health concerns which can lead to increased incidence of cardio-pulmonary diseases, asthma, and cancer. Some groups of people are especially sensitive to air pollutants, including children, older adults, and people with heart or lung diseases. Furthermore, there is a growing awareness that climate change will pose a significant threat to the Massachusetts economy, public health, water resources, infrastructure, and coastal resources. Therefore, Massachusetts is committed to protecting public health and the environment through programs and policies that address air pollution and climate change by reducing air pollutants, including GHGs. The ZEV requirements are critical in obtaining Massachusetts' long term air quality and climate change goals.

M.G.L. c.111, §142K mandates that MassDEP adopt and implement ARB standards for new motor vehicles if such standards are more stringent than the federal standards. In 1990, ARB adopted the California ZEV program that requires the introduction of zero emission technologies to reduce and/or eliminate tailpipe emissions from motor vehicles. Currently, there are nine states that have adopted the California ZEV regulation pursuant to Section 177 of the federal CAA. These are known as the Section 177 ZEV States, and include CT, ME, MD, MA, NJ, NY, OR, RI, and VT. Since 1990, the California ZEV program has been modified eight times. Most recently, ARB adopted the 2013 Minor Modifications to the ZEV regulations (effective July 10, 2014) and the 2014 Amendments to the ZEV regulations (effective date TBD). Therefore, MassDEP is proposing to adopt the ARB ZEV revisions by amending the LEV Program regulations, 310 CMR 7.40. The proposed Massachusetts ZEV standards directly cite and/or incorporate by reference the revised applicable sections within Title 13 of the California Code of Regulations (CCR).

III. BACKGROUND

In 1967, the federal CAA established the framework for controlling mobile source emissions in the United States. Although state emissions standards were preempted by the federal emissions standards under CAA Section 209, California was granted an exemption to the federal preemption because of the state's unique air quality problems. This exemption gave California the authority to set its own standards as long as those standards are at least as protective as the federal standards. In 1990, ARB adopted the ZEV regulation as part of its LEV Program. It has been subsequently modified eight times. The 1977 amendments to the CAA added Section 177 that allows other states to adopt the California standards, if the standards adopted are identical to California's and are adopted at least two years prior to the commencement of the MY to which the standards will apply. In 1992, Massachusetts promulgated 310 CMR 7.40, the LEV Program regulation, as required under Massachusetts law, M.G.L. c.111, §142K. This law mandates that MassDEP adopt and implement

California motor vehicle emissions standards, unless MassDEP finds, after a public hearing and based on substantial evidence, that emission standards and a compliance program similar to California's will not achieve, in the aggregate, greater motor vehicle pollution reductions than the applicable federal standards for any model year.

Massachusetts was one of the first states to adopt California's LEV standards. Massachusetts has also revised its ZEV requirements numerous times to be consistent with California's regulations. MassDEP now proposes to adopt the revisions to the ZEV program finalized by ARB on July 10, 2014 for the 2013 Minor Modifications and (effective date TBD) for the 2014 Amendments to the ZEV regulations to maintain consistency with the California regulations. The changes to the ZEV regulation will ensure fair treatment of intermediate volume manufacturers (IVMs) [8] transitioning into large volume manufacturers (LVMs) by providing adjustments that are necessary to allow them time to produce vehicles for the advanced technology vehicle market. These adjustments will not change the overall percentage requirement for ZEVs in each manufacturer's vehicle fleet.

In general, the ZEV program currently requires automobile manufacturers to produce and deliver for sale a minimum ZEV percentage requirement.[9] The percentage requirement for LVMs and IVMs in MY 2009 through MY 2025 and subsequent MYs is indicated in Tables I & II.

Table I – LVMs' and IVMs' ZEV Percentage Requirement MYs 2009-2017[10]

Model Years	Total ZEV Percentage Requirement	Minimum ZEV floor	TZEVs (Maximum % Credited)	AT PZEVs[11] (Maximum % Credited)	PZEVs[12] (Maximum % Credited)
2009 - 2011	11 %	2.5 %	0 %	2.5 %	6.0 %
2012 - 2014	12 %	0.79 %	2.21 %	3.0 %	6.0 %
2015 - 2017	14 %	3.0 %	3.0 %	2.0 %	6.0 %

[8] There are two subsets of IVMs: those that will become LVMs as of 2018 (BMW, Hyundai, Kia, Volkswagen, and Daimler), and others (known as the IVM_5) that do not anticipate growing to LVMs until after 2018 (Jaguar Land Rover, Mazda, Mitsubishi, Subaru, and Volvo).

[9] A manufacturer's ZEV percentage requirement is a percent of the manufacturer's production volume of PCs and LDTs delivered for sale in Massachusetts based on a three-year average method or same MY method.

[10] The table enumerates a manufacturer's annual percentage obligation for the 2009-2017 MYs. A manufacturer is required to produce the minimum ZEV floor percentage requirement and may fulfill the remaining ZEV requirement with credits from TZEV, advanced technology partial zero emissions vehicle (AT PZEV), and PZEV categories.

[11] AT PZEV is a vehicle certified to PZEV standards that employs ZEV-enabling technologies (e.g., hybrids and compressed natural gas vehicles).

[12] PZEV is a conventional vehicle certified to the most stringent tailpipe standards, with zero evaporative emissions, and with an extended warranty.

Table II – LVMs' and IVMs' ZEV Percentage Requirement MYs 2018-2025+[13]

Model Years	Total ZEV Percentage Requirement	Minimum ZEV floor	TZEVs (Maximum % Credited)
2018	4.5%	2.0%	2.5%
2019	7.0%	4.0%	3.0%
2020	9.5%	6.0%	3.5%
2021	12.0%	8.0%	4.0%
2022	14.5%	10.0%	4.5%
2023	17.0 %	12.0%	5.0%
2024	19.5%	14.0%	5.5%
2025+	22.0%	16.0%	6.0%

An exception to Tables I and II is that for MYs 2012-2017, the total ZEV percentage requirement for an IVM is 12% and an IVM may meet its entire ZEV percentage requirement with PZEVs. For MYs 2018+, an IVM may meet its entire ZEV percentage requirement with TZEVs.[14]

In short, LVMs and IVMs are required to meet an overall percentage requirement for ZEVs, but are allowed some flexibility in the categories of ZEVs that are allowed to meet that percentage.

IV. PROPOSED REGULATORY AMENDMENTS TO 310 CMR 7.40

The information below identifies the eight most significant changes to the ZEV requirements as included in the final ARB regulations. The proposed Massachusetts ZEV standards directly cite and/or incorporate by reference the revised applicable sections within Title 13 of the California Code of Regulations (CCR).

The 2013 Minor Modifications to the ZEV Regulations

1) Adjust the Optional Compliance Path (OCP)[15] as committed to by the Section 177 states and the automobile manufacturers. The changes are:

    a) Use of Transportation System Credits - Transportation system credits are earned for each ZEV and/or TZEV a manufacturer places in a car-share program.[16]

[13] The table enumerates a manufacturer's annual percentage obligation for the 2018-2025+ MYs. A manufacturer is required to produce the minimum ZEV floor percentage requirement and may fulfill the remaining ZEV requirement with credits from ZEVs or TZEVs.

[14] A small volume manufacturer or an independent low volume manufacturer, which are not included in the definition of IVM, is not required to meet the ZEV percentage requirements.

[15] The Optional Section 177 States Compliance Path requires manufacturers to place an additional percentage of ZEVs to the existing obligation in Section 177 states in MYs 2016 and 2017 in exchange for reduced ZEV percentage requirements for MYs 2018-2020. This path encourages the early placement of ZEVs in Section 177 states and provides a smoother ramp up to the full California requirement in 2021.

These are extra credits that a manufacturer can use to meet a portion of their ZEV requirements. ARB has now excluded these credits from being used to meet the additional OCP ZEV percentages in each of the Section 177 states in MYs 2016 and 2017. The intent of the additional ZEV percentages in the optional path is to ensure actual ZEVs are delivered in the Section 177 states prior to MY 2018. This modification helps ensure those additional percentages are met with credits from actual vehicles. See Title 13 CCR 1962.2(g)(5)(C) and (6)(C).

b) Pooling[17] - Manufacturers on the OCP may trade and transfer 2012 through 2017 MYs ZEV and TZEV credits within and between each Regional pool. Previously, manufacturers were only allowed to trade and transfer credits in a single year within and between each Regional pool.

c) IVMs – A table has been added to the California ARB regulation at Title 13 CCR 1962.1(d)(5)(E)3.c. to clarify how the IVMs are to comply with the OCP. IVMs interested in this path are to meet the same additional ZEV percentages available to the LVMs (see third column in Table III), but are allowed to meet the remaining requirement with PZEV (see fourth column in Table III).

Table III – ZEV Percentage Requirement for IVMs

Years	Total ZEV % Requirement for OCP	Additional ZEV Percentage	Percent requirement that may be met with PZEVs
2015	11.25 %	0 %	11.25 %
2016	12.15 %	0.75 %	11.40 %
2017	13.05 %	1.50 %	11.55 %

d) Reporting Requirements – The requirement to report vehicle identification numbers (VINs) for TZEVs prior to MY 2018 is no longer required. Rather, automobile manufacturers are required to provide VINs for ZEVs and TZEVs upon request.

e) Failure to Comply – An automobile manufacturer that fails to comply in any MY with the OCP will be prohibited from participating in the Regional pooling option in the future years (i.e., it cannot trade or transfer credits within or between the Regional pools).

2) Maintain a minimum ZEV credit requirement regardless of MY and use of non-ZEV credits (e.g., GHG-ZEV over-compliance credits or transportation system credits from ZEVs). Automobile manufacturers are allowed to earn various types of credits to comply with the ZEV requirements. Caps on certain credits have been used to ensure that a manufacturer would still be required to produce ZEVs. Since there have been no clear directions for how to apply credit caps in combination to meet the ZEV

[16] Detailed in Title 13 CCR 1962.1(g)(5)(B)[ii] as "the application of "intelligent" new technologies such as reservation management, card systems, depot management, location management, charge billing and real-time wireless information systems."

[17] Pooling is based on the total volumes of PCs and LDTs produced and delivered for sale in all Section 177 States.

requirements, ARB is implementing an overall rule that non-ZEV credits may only be used to meet 50% of a manufacturer's minimum ZEV requirement in a given MY.

3) Amend the fast refueling[18] definition for determining ZEV types. Battery exchange is qualified under the fast refueling definition as long as it is based on real-world fast refueling events during the year. A manufacturer must submit documentation of the total number of fast refueling events used to refuel its Type III, IV, or V ZEVs in that MY in order to claim fast refueling credits (see the list of acronyms at the beginning of this document for definitions of these Types).

The 2014 Amendments to the ZEV Regulations

4) Establish a global revenue test, in addition to the existing California sales threshold, for IVM_5 transitioning to LVM status. Beginning with MY 2018, an IVM with California sales greater than 20,000 new light- and medium-duty vehicles (based on average number of vehicles sold for the three previous consecutive MYs) and a global revenue threshold of 40 billion dollars[19] (based on the average of the three consecutive fiscal years immediately preceding the determination) will become a LVM. Table IV below shows recent sales and revenue of most of the IVMs.

Table IV – 2012 Sales and Revenue[20]

OEM		Sales		Global Revenue (billions)
		California	Global	
IVM_5	Jaguar Land Rover	7,246	413,752	$21.50
	Mazda	34,111	1,095,056	$24.70
	Mitsubishi	8,053	554,406	$22.00
	Subaru	21,184	369,601	$16.90
	Volvo	8,269	421,951	$19.10
IVMs that will become LVMs as of 2018	BMW	57,983	1,367,617	$94.70
	Daimler	57,904	1,118,817	$81.60
	Hyundai	113,967	4,945,704	$81.40
	Kia	47,695	2,709,000	$45.50

BMW, Daimler, Hyundai, Kia, and Volkswagen will be subject to the ZEV requirements as LVMs beginning in 2018. Jaguar Land Rover, Mazda, Mitsubishi, Subaru, and Volvo will remain IVM_5 until they hit the thresholds of 20,000 sales units and $40 billion global revenue.

[18] Detailed in Title 13 CCR 1962.1(d)(5)(B)[ii] as the minimum vehicle range that must be obtained due to charging for a specified length of time. Fast refueling can occur through a battery swap or through traditional vehicle charging.

[19] The global revenue test is only available to IVM_5 for the 2018 through 2020 MYs.

[20] ARB, 2014. Table 1 of the 2014 Amendments to the California Zero Emission Vehicle Program Regulation, California Air Resources Board, September 2, 2014. (http://www.arb.ca.gov/regact/2014/zev2014/zev14isor.pdf) Volkswagen is not listed in the table, but is the largest IVM, and is becoming an LVM beginning with MY 2018.

5) Provide IVM_5 transitioning to LVM status additional time before having to deliver advanced technology vehicles. An IVM_5 that might grow to become an LVM is given an extended lead time of 5 (previously 3) three-year averages once the first three-year average exceeds 20,000 vehicles. This provides IVM_5 more time to bring a vehicle to market and a smoother transition.[21]
6) Provide IVM_5 the ability to pool ZEV compliance in Section 177 states. Since only one IVM_5 has a ZEV product and some IVM_5 have few dealers in some of the Section 177 states, IVM_5 may place extra ZEVs in Section 177 states in the two MYs prior to the start of their LVM requirements. In addition, IVM_5 will be allowed to pool TZEV credits to meet total annual percentage obligations in each Section 177 state.
7) Adjust the ZEV credit deficit provisions to provide manufacturers three years to make up any deficit. An IVM_5 must provide an action plan illustrating how it will achieve compliance, which has to be approved by ARB's Executive Officer. The Executive Officer may provide an IVM_5 up to three years to make up a deficit in the case of a delivered ZEV that is underperforming in the market. In the case where a manufacturer with a credit deficit has not produced and delivered a ZEV for sale in California, the Executive Officer will only approve a credit recovery period of one year.
8) Clarify the fast refueling definition that fast refueling events occurring during the initial 12-month period following the vehicle's placement in California would qualify for the fast refueling credit. For example, a MY 2015 battery electric vehicle placed in service on October 31, 2015 would be able to count all fast refueling events occurring during the period from October 31, 2015 through October 30, 2016.

Electronic Submissions

Some automobile manufacturers have requested that MassDEP eliminate the submittal of hard copies for EOs and warranty (Emission Warranty Information Reports, Field Information Reports, and Emission Information Reports) and recall (Recall Plans and Recall Campaign Progress Reports) reports in order to minimize their administrative burdens associated with compliance with the LEV reporting requirements. Therefore, MassDEP is proposing to provide automobile manufacturers the option to submit EOs and warranty and recall reports only by electronic submission in order to streamline the administrative burden for the automobile manufacturers and MassDEP.

V. AIR QUALITY IMPACTS

Although Massachusetts is designated as being in attainment with national ambient air quality standards for ozone, with the exception of Dukes County, the proposed amendments are needed to guarantee that emissions reductions previously achieved will be maintained to meet the air quality standards. The US EPA is expected to further lower the ozone standard

[21] Lead time example: an IVM has sales of 14K, 19K and 31K in 2016, 2017, and 2018, respectively, such that their 3-year average is over 20K and they are defined as an LVM in 2019. They must comply as an LVM in 2024 (5 three-year averages lead time).

in October 2015, which may bring additional areas of Massachusetts into nonattainment for ozone.

As noted in the executive summary, implementation of the ZEV standards for motor vehicles will result in a substantial reduction in CO_2 emissions in Massachusetts and will help the Commonwealth meet its air quality and GWSA goals of 25% reduction in GHGs by 2020 and at least 80% reduction by 2050. In addition, the vehicle technologies used to comply with the ZEV requirements would reduce demand for petroleum fuels and help diversify the transportation fuel market. The increase in alternative fuels, such as electricity and hydrogen, will decrease our demand for fossil-fuels as well as reduce pollutants that harm public health, degrade environmental quality, and contribute to global warming.

When the ZEV regulation was proposed as part of the package of regulations referred to as the ACC Program in May 2012, the technical support document that was prepared for those regulations included an environmental analysis for the ZEV regulation.[22] The ACC document concluded that compliance with the ACC Program would result in beneficial impacts to air quality through reductions in emissions, including GHGs, criteria air pollutants, and toxic air contaminants. Furthermore, the ACC Program would result in less than significant or no impacts to agricultural and forest resources, land use, population and housing, and recreation.

Since the proposed amendments address the changes to improve administration of the ZEV program, improve competitiveness, and provide IVMs the flexibility needed to successfully commercialize ZEV technologies, there will not be any substantial changes to the environmental setting or circumstances in which the amendments to the ZEV regulation are being implemented compared to that analyzed in the ACC document. The amendments do not modify the in-place fleet average emission standards and do not alter the compliance responses of the regulated entities or result in any changes that significantly affect the physical environment. Therefore, as described above, the proposed changes do not result in any new environmental impacts.[23]

The changes in the reporting requirements for EOs and warranty and recall reports from hard copies to providing automobile manufacturers with the option to submit them electronically are expected to reduce paper usage by relying on email distribution. Conserving paper can play a major role in helping to preserve vital resources and reduce an organization's environmental impact which helps the global environment.

VI. ECONOMIC IMPACTS

Modifications in this rulemaking are corrective, clarifying, or updating in nature and are intended to ensure the emissions benefits expected from the program are achieved. The stringency of the program remains unchanged and should not introduce any new economic

[22] MA TSD Report: Background Document and Technical Support for Public Hearing on the Proposed Amendments to the LEV III, Greenhouse Gas, and Zero Emission Vehicle Standards, MA, May 2012.
[23] See page 18, ARB ISOR, 2014 Amendments to ZEV Regulation at http://www.arb.ca.gov/regact/2014/zev2014/zev14isor.pdf

impacts. Therefore, there should not be any significant adverse potential impacts to business creation, elimination, or expansion expected from this regulatory action.

The amendments affect the approximately ten vehicle manufacturers subject to the ZEV regulations, most of which are headquartered outside of Massachusetts. In recognition of the lesser research and development capabilities of the IVMs in comparison with the LVMs, the amendments to the ZEV regulation allow IVMs to have a pathway to pool compliance obligations and allow additional time to make up ZEV credit deficits. In addition, a global revenue test is added that gives some additional time for IVMs to transition to LVMs. Based on California's discussions with stakeholders, these changes are not expected to significantly alter the number of ZEVs a manufacturer would need to produce in any model year.[24]

Also, it is possible that with an increase in ZEVs and advanced technology vehicles in Massachusetts, other companies that produce parts for or service such vehicles will have an incentive to move to or expand in the Commonwealth. Given the cutting-edge nature of the vehicle technologies and the prevalence of technology programs at Massachusetts universities, start-up ventures could also be created to benefit from the requirement for ZEV and advanced technology vehicles.

The option to submit EOs and warranty and recall reports electronically can improve efficiency and reduce costs for automobile manufacturers. The costs using electronic transactions instead of paper would be reduced because there would be no printing, delivery, or physical storage of documents. This approach will have significant financial benefits and increase productivity.

VII. OTHER PROGRAM IMPACTS AND PUBLIC PARTICIPATION

The proposed changes to the ZEV regulation provide more flexibility to auto manufacturers. Because the regulation does not apply to auto dealerships, vehicle operators, businesses, and agencies at the local, state or federal levels, it has no impact upon these entities. As these amendments do not affect Massachusetts businesses, they are not anticipated to have an effect on the creation or elimination of jobs within the State of Massachusetts. These amendments are not expected to change vehicle prices in a way that would alter vehicle purchase decisions. Therefore, there will be little to no impact to consumers and jobs in Massachusetts.

Agricultural Impacts

Pursuant to Massachusetts General Law, Chapter 30A, Section 18, state agencies must evaluate the impact of proposed programs on agriculture within the Commonwealth. The proposed revisions are expected to reduce air pollutants, including GHGs. Due to the improved air quality that will result from the proposed amendments, agricultural crop production in Massachusetts could improve.

[24] See pages 13-14, ARB ISOR, 2013 Minor Modifications to the ZEV Regulation at http://www.arb.ca.gov/regact/2013/zev2013/zev2013isor.pdf

Impact on Massachusetts Municipalities
The proposed revisions are expected to reduce air pollutants, including GHGs, by imposing requirements for increased ZEVs in motor vehicle manufacturer fleets delivered for sale in Massachusetts and other ZEV program states, if a manufacturer wishes to take advantage of flexibilities proposed in the amendments. Therefore, no costs or requirements are directly imposed upon municipalities.

Impacts on Other Programs – Air Toxics
Air toxics are a group of chemical air contaminants that are associated with significant environmental impacts or adverse health effects such as cancer, reproductive effects and birth defects. The federal Clean Air Act requires EPA to promulgate source-specific controls based on Maximum Achievable Control Technologies (MACT) to address air toxics. MassDEP implements major source MACT standards as EPA promulgates them. In addition, MassDEP controls air toxics through other air quality programs and reduces the use of toxics through its Toxics Use Reduction Program. The proposed amendments will decrease air toxics emissions by requiring increases in ZEV vehicles for sale in Massachusetts and other ZEV program states, if a manufacturer wishes to take advantage of flexibilities proposed in the amendments.

Small Business Impact Statement
No additional costs or requirements are imposed on any small business by the proposed regulations. A Small Business Impact Statement has been filed with the Secretary of the Commonwealth and is available on Secretary's website.

Stakeholder Input
MassDEP has participated in a series of meetings and conference calls in the rulemaking process with ARB and automobile manufacturers over the last two years that have resulted in ARB's revised regulations.

Massachusetts Environmental Policy Act
The proposed regulations are exempt from the "Regulations Governing the Preparation of Environmental Impact Reports," 301 CMR 11.00, in that no MEPA review threshold set forth in 310 CMR 11.03 is met or exceeded. In addition, these proposed regulations do not reduce standards for environmental protection, nor do they reduce opportunities for public participation in review processes or public access to information generated or provided in accordance with the regulations. (See MEPA review threshold pertaining to promulgation of regulations at 301 CMR 11.03(12)).

Public Notice and Comment Procedures
M.G.L. Chapter 30A requires MassDEP to give notice and provide the opportunity to review the proposed amendments to 310 CMR 7.40, including the background document and any technical information, at least 21 days prior to holding a public hearing. The hearing will be held in accordance with the procedures of M.G.L. Chapter 30A. A copy of the proposed regulation is available on MassDEP's website at: http://www.mass.gov/dep/.

If there are any questions regarding this document, please contact Ms. Ngoc Hoang, 617-292-5762 or Ngoc.Hoang@state.ma.us at MassDEP's Boston Office.

VIII. REFERENCES

Final Statement of Reasons for Rulemaking – Including Summary of Comments and Agency Responses, 2013 Minor Modifications to the California Zero Emission Vehicle Program Regulation, California Air Resources Board, October 24, 2013. http://www.arb.ca.gov/regact/2013/zev2013/zevfsoroal.pdf

Final Statement of Reasons for Rulemaking – Including Summary of Comments and Agency Responses, the 2014 Amendments to the California Zero Emission Vehicle Program Regulation, California Air Resources Board, date TBD.

MassDEP, Massachusetts Annual Greenhouse Gas Emissions Inventory; 1990-2011, with Partial 2012 Data, July 2014. http://www.mass.gov/eea/agencies/massdep/climate-energy/climate/ghg/greenhouse-gas-ghg-emissions-in-massachusetts.html

Massachusetts General Laws, Chapter 111: Section 142K. Motor vehicle emissions standards.

MA TSD Report: Background Document and Technical Support for Public Hearing on the Proposed Amendments to the LEV III, Greenhouse Gas, and Zero Emission Vehicle Standards, MA, May 2012.

Staff Report: Initial Statement of Reasons for Rulemaking, the 2013 Minor Modifications to the California Zero Emission Vehicle Program Regulation, (http://www.arb.ca.gov/regact/2013/zev2013/zev2013isor.pdf), ARB, September 4, 2013.

Staff Report: Initial Statement of Reasons for Rulemaking, the 2014 Amendments to the California Zero Emission Vehicle Program Regulation, (http://www.arb.ca.gov/regact/2014/zev2014/zev14isor.pdf), ARB, September 2, 2014.

U.S.EPA, Title I – Air Pollution Prevention and Control, Part D – Section 177, 42 U.S.C. §7507.

U.S.EPA, Title II – Emission Standards for Moving Sources, Part A – Section 209, 42 U.S.C. §7543.

US EPA, Fast Facts. U.S. Transportation Sector Greenhouse Gas Emissions 1990-2012, http://www.epa.gov/oms/climate/documents/420f15002.pdf, March 2015.